

## CLAIMS

1. Method for optical measurement of a cast model of a dental restoration tooth in restorative dentistry, comprising:

- aligning a coherent-radar device to the cast model of the tooth to be restored with dental restoration and/or vice versa, so that a direction of a measurement beam of the coherent-radar device generally coincides with an insertion or placement direction of the dental restoration tooth, defining a Z-direction,

- performing the alignment with help from a real-time video image, which shows at least the tooth to be restored from the Z-direction of the coherent-radar device, and then

- measuring the cast model with the coherent-radar device.

2. Method according to Claim 1, further comprising aligning the cast model of the tooth to be restored on a magnetic tilting table outside of the coherent-radar device and then introducing the cast model into the coherent-radar device for measurement.

3. Method according to Claim 1, wherein the measurement of the cast model is performed by the coherent-radar device with light at a bandwidth between 3-40 nanometers.

4. Method according to Claim 1, further comprising performing an additional measurement so that two measurements are performed for enlarging a measurement field of the coherent-radar device, where the cast model is shifted in a defined manner relative to the coherent-radar device and orthogonal to the Z-direction.

5. Method according to Claim 1, further comprising performing a second measurement so that two partially overlapping measurements are performed for enlarging a measurement field of the coherent-radar device, where the shift of the

cast model relative to the measurement field or vice versa is determined by a computer with reference to an overlapping part of measurement data.

6. Method according to Claim 1, further comprising enlarging a measurement field by providing an exchangeable camera objective in the coherent-radar device.

7. Device for optical measurement of a cast model of a tooth in restorative dentistry, comprising:

- a coherent-radar device (6) and a sample holder (2) for the cast model (1) of a tooth (4) to be restored with dental restoration,

- the coherent-radar device (6) and/or the sample holder (2) are adjustable such that a direction of measurement beams of the coherent-radar device (6)) can be brought generally into alignment with an insertion or placement direction (5) of the dental restoration, defining a Z-direction,

- a camera (10) for recording a real-time video image, which shows at least the tooth (4) to be restored from the Z-direction (5) of the coherent-radar device (6), and

- a display device for showing a recorded real-time video image.

8. Device according to Claim 7, wherein the sample holder (2) comprises a magnetic tilting table (3).

9. Device according to Claim 7, wherein a light source (7) of the coherent-radar device (6) has a bandwidth between 3-40 nanometers.

10. Device according to Claim 7, wherein the sample holder (2) can be shifted in a defined manner orthogonal to the Z-direction (5) of the coherent-radar device (6).

LBP-PT035  
(20 152 kw)

11. Device according to Claim 7, wherein the coherent-radar device (6) is equipped with an exchangeable camera objective (13).